National Institute of Environmental Health Sciences

Impacts of heavy rain and typhoon on allergic disease

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Abstract:

Objectives: Allergic disease may be increased by climate change. Recent reports have shown that typhoon and heavy rain increase allergic disease locally by concentration of airborne allergens of pollen, ozone, and fungus, which are causes of allergic disease. The objective of this study was to determine whether typhoon and heavy rain increase allergic disease in Korea. Methods: This study included allergic disease patients of the area declared as a special disaster zone due to storms and heavy rains from 2003 to 2009. The study used information from the Korea Meteorological Administration, and from the National Health Insurance Service for allergic diseases (asthma, allergic rhinitis, and atopic dermatitis). Results: During a storm period, the numbers of allergy rhinitis and atopic dermatitis outpatients increased [rate ratio (RR)Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)1.191; range, 1.150-1.232] on the sixth lag day. However, the number of asthma outpatients decreased (RREuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)0.900; range, 0.862-0.937) on the sixth lag day after a disaster period. During a storm period, the numbers of allergic rhinitis outpatients (RREuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)1.075; range, 1.018-1.132) and atopy outpatients increased (RREuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)1.134; range, 1.113-1.155) on the seventh lag day. However, the number of asthma outpatients decreased to RR value of 0.968 (range, 0.902-1.035) on the fifth lag day. Conclusion: This study suggests that typhoon and heavy rain increase allergic disease apart from asthma. More study is needed to explain the decrease in asthma.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Extreme Weather Event, Precipitation

Air Pollution: Allergens, Ozone

Extreme Weather Event: Hurricanes/Cyclones

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☒

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: South Korea

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Dermatological Effect, Respiratory Effect

Respiratory Effect: Asthma, Upper Respiratory Allergy

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified